



The City of Raleigh

Stormwater Management Advisory Commission

April 5, 2018
3:00 pm

Conference Room 305
Raleigh Municipal Building

Commission Members Present: Matthew Starr, Chris Bostic, Jonathan Page, Francine Durso, and Mark Senior

Staff Members Present: Blair Hinkle, Kelly Daniel, Suzette Mitchell, Scott Smith, Lory Willard, Craig Deal, Scott Bryant, Brad Cole, Kirstin Freeman, Donald Stankus, Justin Harcum, Lauren Witherspoon, Kevin Boyer, Dale Hyatt, Brad Stuart, Ashley Rodgers, Ben Brown, Wenju Zhang, and Veronica High

Commission Members Absent: Ken Carper, David Webb, Evan Kane, and Vanessa Fleischmann

Guests: Leah Young, Amanda Weichmann, Harper Pruitt, Rachel Hill, Kam Miller, Ryan Smith, Kay Trefinger, Amy Wazenegger, Amit Sachert, Rosemarie Wilson, and Marsha Presnell-Jeanette

Meeting called to order: at 3:00 pm by Mr. Starr (*chair*)

1. Welcome, Introductions, Excused and Unexcused Absence and Approval of March Minutes

- Mr. Starr informed the Commission that they did not have a quorum with four members being out (*Mr. Carper, Mr. Webb, Mr. Kane, and Ms. Fleischmann*) and one being late (*Mr. Senior*). They moved these items to the end of the agenda for a vote.

2. Stormwater Staff Report

- **Staffing Update**
 - **Promotion** – Justin Harcum (*Engineer in Water Quality*)
 - **Transfer** – Donald Stankus (*Senior Engineering Inspector in CIP coming from Construction Management*)
 - **Resigning** – Lory Willard (*Senior Engineer in Water Quality*)
- **Project Videos** – Staff has been considering new ways in getting the word out about projects we do, particularly on the Capital Improvement side. We worked with the Communications Department in getting drone footage of projects and today we are showing Lower Longview Lake Dam Rehabilitation and Brentwood Today Stream Stabilization.
- **Survey for Service on the Commission** – A survey was sent out relating to service to the Commission, please complete the survey.
- **Pilot Parking Program for Attendees of Public Meetings** – Visitors attending public meetings are asked to sign-in to receive free parking vouchers. These vouchers only apply to visitors parking at the Municipal and Moore Street (OEP) parking decks.
- **Council Agenda Items Update:**
 - **Stormwater Quality Cost Share Policy Revision Status Update** – **Kevin Boyer** informed the Commission that the policy changes were approved and adopted on March 6 by Raleigh City

Council. The changes are to streamline the process and to make the program more accessible to citizens. The policy has been revised, and we don't have the final written resolution of the formal version. In response to the changes that Raleigh City Council adopted, staff has made administrative changes to accommodate those, which he will outline at today's meeting (handouts are in the agenda packet).

Mr. Starr asked what's the process if a project is approved by staff, will those be covered in a staff report or the staff updates? What will happen if staff disagrees on project approval? **Kevin Boyer** said if staff disagrees, it will be brought to the Commission and **Blair Hinkle** answered for those staff approved projects, we can place a standing item on each agenda. **Mr. Starr** said you can just summarize on the agenda saying staff approved a total number of projects.

Ms. Durso suggest adding one item on all three forms. An item that specifically says, "the cost per lb. of nitrogen removed per year" so it can be clear to the Raleigh City Council the dollars that go into it.

***Blair Hinkle noted the Commission still does not have a quorum to vote on certain items.**

3. **Procedures for Evaluating Stormwater Quality Cost Share Projects**

Lory Willard went over the five procedure steps in evaluating the Raleigh Rainwater Rewards cost share projects.

- **Consultation** - *Site feasibility, maintenance discussion, follow-up soil tests, and the technical assistance during project planning.*
- **Application Review** - *Assessments for meeting program requirement, constructability, design, sizing, cost, and purpose of project.*
- **Project Implementation** - *Staff/SMAC/City Council approval, notarized agreement, continued conversations as needed during design, and verification during construction.*
- **Reimbursement** - *Confirm project installed matches approval, confirm line items are all acceptable costs, and reimbursement based only on acceptable costs.*
- **Maintenance** - *Annual inspections by licensed professional for projects over \$100,000 and work with property owner to fix projects out of compliance.*

5. **Update on USGS - City of Raleigh Streamflow and Precipitation**

Scott Bryant said his team (*Kelly Daniel, Brad Stuart and Craig Deal*) will speak on United States Geological Survey (USGS) network. Stormwater has been working with USGS for many years on the stream gauges currently throughout the City (*i.e. Crabtree Basin, Walnut Creek*) and we are considering expanding that network. Today's presentation will focus on the current system we have in place, the proposed system we are moving toward, and some of the applications beneficial to the use of that system.

Presentation Summary

- Partnership between City of Raleigh (*Stormwater & Public Utilities*) and USGS.
- Total of 17 stream gauges in the City and surrounding areas.
- Nine stream gauges in the City that monitors stream level/discharge/rainfall or combination of all three.
- Proposing five new stream gauges on Walnut Creek – USGS will install and maintain the gauges, and Stormwater will pay annual maintenance costs for the gauges.
- Current Uses – Monitoring and flood warnings (*Crabtree Creek*), public safety, and floodplain management.
- Crabtree Creek gauge dashboard website:
<http://ral.maps.arcgis.com/apps/opsdashboard/index.html#/c508f19996c54cbc9e3cba416017d22b>
- Future Uses - Monitoring crossings, gauge-adjusted radar rainfall, flood early warning systems, flood early warning/flood alert system, roadside flood warning, updating precipitation intensity-duration-frequency, updating the probable maximum precipitation, predicting rainfall that will overtop dams, and support for integrated watershed master planning.

- Budget Cost - Current annual contribution from Stormwater is \$49,770. The estimated annual cost for five additional gauges (\$89,0000), placing Stormwater's annual cost at \$138,770. USGS is estimating these gauges will possibly be installed by June 2018, and staff is investigating the possibility of installing web cameras at some sites.

Mr. Bostic asked does staff know how USGS agreements work for other municipalities (*i.e. Charlotte*). **Scott Bryant** believes it's similar, but staff can bring back more specific information on that. **Kelly Daniel** added, that USGS will provide staff contact information for Charlotte, especially since we are interest in installing webcams. We hope eventually to do a site visit to see what they are doing.

Ms. Durso commented that staff has done a fabulous job in demonstrating a high level of benefit that will come out of this, especially what it could do for safety in the city. In addition, she referenced the probable maximum precipitation (*PMP*) and how interesting it will be to see how it's changed from the older data.

6. **Excused and Unexcused Absence /Approval of the Minutes/ Stormwater Cost Share Projects**

Mr. Starr mentioned that we still do not have a quorum, therefore, we cannot vote on the approved absences as well as the minutes and cost share projects. Also, he noted the March minutes have been updated with Ms. Durso comments (*highlighted in yellow*) in the agenda packet. He stated the Commission will vote on them next month.

Mr. Starr asked if the three water quality projects were time sensitive. **Lory Willard** answered that two of the projects are and the other is constructed already. The (*2112 Avent Ferry Rd.*) project was planning on starting construction May 16, so they will be unable to do that since this will need final approval by Raleigh City Council. The project (*420 S. Bloodworth St.*) is a site redevelopment, and they have requirements that their trees need to be planted by April 30.

Blair Hinkle suggested once the meeting is over, staff will reach out to all three property owners to inform them that likely approval of the projects will be in early May. If they are still interested in participating, staff will see how we can help them. **Mr. Starr** stressed the importance of not wanting to lose their participation because the Commission failed at not having a quorum. We will need to ensure them that we want their participation. **Ms. Durso** reminded the chair that anything the property owners do preceding with the projects is at their own risk, and it needs to be somewhere in writing that we cannot give them any assurances that these will be funded. **Blair Hinkle** said we will pass that along to them. **Kevin Boyer** suggested we can move them into the already started construction before approval category. **Mr. Starr** asked what categories each of the three projects fall under. **Lory Willard** said (*420 Bloodworth St.*) will need final approval by the Commission. The (*2112 Avent Ferry Rd.*) will need final approval by Raleigh City Council, and they are not sure if they do get funding it will be enough to do the project. The (*616 Ortega Rd.*) has already started. **Blair Hinkle** said the best we can do is make sure they are on the agenda for the May meeting, and **Lory Willard** added that they will be assuming risk if they start construction beforehand, but that it will not necessarily be counted against them.

Adjournment: Mr. Starr adjourned the meeting at 4:22 pm.

Suzette Mitchell



The City of Raleigh

Stormwater Management Advisory Commission

March 1, 2018
3:00 pm

Conference Room 305
Raleigh Municipal Building

Commission Members Present: Matthew Starr, Vanessa Fleischmann, Jonathan Page, Evan Kane, Ken Carper, Francine Durso, and David Webb

Staff Members Present: Blair Hinkle, Kelly Daniel, Suzette Mitchell, Scott Smith, Craig Deal, Kevin Boyer, Scott Bryant, Brad Cole, Sonya Debnam, Veronica Barrett, Kristin Freeman, Lauren Roper, Lauren Witherspoon, Lory Willard, Melanie Nguyen, Dale Hyatt, Ben Brown, Jonathan McNeill, Lauren Roper, Wenju Zhang, Amy Farinelli, and Veronica High

Commission Members Absent: Mark Senior and Chris Bostic

Guests: Marsha Presnell-Jeanette, Nicole Stewart, Amy Wazenegger, Amit Sachan, Tony Grubbs, and Ryan Smith

Meeting called to order: at 3:02 pm by Matthew Starr (*Chair*)

1. Welcome, Introductions, Excused Absences

- Council Member **Nicole Stewart** was introduced as the Raleigh City Council liaison to the Commission. She said she wants to be a strong advocate and provide any needed assistance for stormwater protection and water quality.
- FY19 Residential Budget Survey – An online survey is available to give you an opportunity to tell the City that you want more funding for stormwater management and other environment programs.
- **Mr. Kane** made a motion to excuse **Mark Senior** and **Chris Bostic** from today's meeting and **Mr. Carper** seconded. The motion was approved unanimously.

2. Approval of the Minutes – February 1, 2018 Meeting

- **Ms. Fleischmann** made a motion to approve the minutes and **Mr. Page** seconded. The motion was passed unanimously.

3. Stormwater Staff Report - (Staffing Updates)

- **New Employees –**
 - Watershed Master Planning – Craig Deal (*Senior Engineer*)
 - Stormwater Inspections – Lauren Roper (*Engineering Specialist*)
- **Recreated Position –**
 - Stormwater Manager – *Raleigh City Council recreated the position and management is currently developing a recruitment strategy.*
- **Council Pilot Parking Program** (*free public parking for Boards/Commission/Council*) – *At the next SMAC meeting, any member of the public in attendance will receive a City voucher for free parking. Our staff will be putting the framework together and will be tracking this for our meetings.*

4. **Election of Chair and Vice-chair - Mr. Starr** asked the Commission if they would like to nominate anyone or volunteer themselves to serve as chair or vice-chair. He stated he could continue as chair if there's no objection. **Mr. Webb** nominated **Ms. Fleischmann** to continue as vice-chair, however; she declined stating her term ends at the end of the year. **Mr. Carper** said he would volunteer as vice-chair.

Motion:

Mr. Starr made a motion to continue serving in the role as chair and for **Mr. Carper** to serve as vice-chair and **Mr. Carper** seconded. The motion was passed unanimously.

5. **Stormwater Quality Cost Share Projects (7)**

Lory Willard (*Senior Engineer*) informed the Commission that staff has been working with Communications on changing the name of the Stormwater Quality Cost Share Program and has chosen Raleigh Rainwater Rewards as the new name. She indicated there are seven projects up for review for this meeting.

324 Buncombe Road: Remove 300 square feet of pavement, remediate the soil, and plant grass and a tree at this residential property. It's located in the Crabtree Creek Watershed and eligible for a 75 percent City reimbursement.

324 Buncombe Road	
Stormwater/City Contribution (75%)	\$2,400
Petitioner Contribution (25%)	\$800
Total	\$3,200

Commission Comments/Discussion:

- *Pay for stabilization cost, but not tree planting and landscape cost.*
- *Does City have a planting program available to citizens?*
 - *Staff: Not that we are aware of.*

Motion:

Mr. Starr made a motion to approve the project minus the tree installation cost and **Ms. Fleischmann** seconded. The motion was approved unanimously.

616 Ortega Road: Installing a 200-square-foot rain garden at this residential property. The project will treat runoff from 870 square feet of impervious surface and 230 square feet of adjacent lawn. It's located in the Big Branch Watershed and eligible for a 75 percent City reimbursement.

616 Ortega Road	
Stormwater/City Contribution (75%)	\$3,321
Petitioner Contribution (25%)	\$1,107
Total	\$4,428

Commission Comments/Discussion:

- *Is this one sized or are all the rain gardens sized using some type of criteria to capture all the runoff associated with one-inch?*
 - *Staff: That's what we aim for and what we ask the designer to try to do.*
- *Is there a cost breakdown for the project?*
 - *Staff: Not a detailed breakdown.*

Motion:

Ms. Durso made a motion to approve the project and **Ms. Fleischmann** seconded the motion. The motion was approved unanimously.

810 E. Martin Street and 805 E. Davie Street: Installing two 3,000-gallon cisterns to treat runoff from 2,500 square feet of impervious roof surface. This will increase the water available to the community garden on Camden Street. The cistern will be located at 810 E. Martin Street and will be connected to downspouts from the building at 805 E. Davie Street. It's located in the Walnut Creek Watershed and eligible for a 75 percent City reimbursement.

810 E Martin Street and 805 E. Davis Street	
Stormwater/City Contribution (75%)	\$4,734
Petitioner Contribution (25%)	\$1,578
Total	\$6,312

Commission Comments/Discussion:

- Show cost estimate breakdown for all projects.
- Note on the budget comparison sheet the cistern was donated.
- It's good to see cistern project with a dedicated use.
- Is there an agreement with the church to allow connection?
 - Staff: Yes, between the two property owners.

Motion:

Mr. Webb made a motion and **Mr. Kane** seconded the motion. The motion was passed unanimously.

7217 Madiera Court: Installing two rain gardens totaling 450 square feet to treat runoff from a 2,170 square foot drainage area, including 1,960 square feet of impervious surface. The property owner would like to forego the three-quote requirement for this project and therefore is requesting a maximum reimbursement of \$5,000 or up to 90 percent of the cost. This project is located in the Perry Creek Watershed.

7217 Madiera Court	
Stormwater/City Contribution (69%)	\$5,000
Petitioner Contribution (31%)	\$2,200
Total	\$7,200

Motion:

Ms. **Durso** made a motion to approve, and **Mr. Webb** seconded the motion. The motion was approved unanimously.

742 Shelley Road: Installing a 3,000-square-foot permeable paver driveway at this residential property. It's in the Mine Creek Watershed and eligible for a 75 percent City reimbursement.

742 Shelley Road	
Stormwater/City Contribution (75%)	\$17,040
Petitioner Contribution (25%)	\$5,680
Total	\$22,720

Commission Comments/Discussion:

- The cost per lb. of nitrogen calculated is high.
- Type of material and surface use for permeable pavers.
- Concern with incentive program, that the contractor that offered the subsidize program of service, increases their prices by the amount of subsidy. Concerned about how much is padded in the rest of the cost.
- Type of documentation required for submitted for reimbursement.
- Concern with projects where the cost/pound of nitrogen removed/year is over \$50,000/pound/year.
- Discussion on assumptions that goes into these models.

Blair Hinkle proposed staff return at the next meeting to discuss how the numbers are calculated and if they want more specific details they have the authority to defer this project.

Motion:

Mr. Starr made a motion to approve and **Mr. Carper** seconded. The motion was approved (6-1) with **Ms. Durso** opposing.

420 S. Bloodworth Street: Installing rain gardens totaling 1,350 square feet and a 200-gallon cistern. These projects will treat runoff from 3,325 square feet of impervious roof and sidewalk and 1,925 square feet of adjacent lawn. It's located in the Walnut Creek Watershed and eligible for a 90 percent City reimbursement.

420 S Bloodworth Street	
Stormwater/City Contribution (90%)	\$26,933
Petitioner Contribution (10%)	\$2,993
Total	\$29,926

Commission Comments/Discussion:

- Grading cost is high

Motion:

Mr. Starr made a motion to remove the item, and have staff return to the Commission with a detailed breakdown of the exact cost of the grading and other budgetary items for this project. **Mr. Carper** seconded the motion. The motion was passed unanimously.

2112 Avent Ferry Road: Installing 1,850 square feet of permeable pavers and 1,000 square feet of infiltrating tree boxes while removing 875 square feet of pavement at an apartment complex owned by North Carolina State University (NCSU). The drainage area treated totals 12,750 square feet, including 12,310 square feet of impervious surface. It's located in the Walnut Creek Watershed and eligible for a 75 percent City reimbursement.

2112 Avent Ferry Road	
Stormwater/City Contribution (75%)	\$76,931
Petitioner Contribution (25%)	\$25,644
Total	\$102,575

Commission Comments/Discussion:

- Does NCSU pay full Stormwater Fees for this property or are they reduced?
 - Staff: NCSU pays a reduced fee. They get an 85 percent credit for this property.
- Concerns on the spending amount when NCSU is already receiving a credit.
- Need more details (drawings).
- Expensive, but would be a great improvement.

Motion:

Mr. Starr made a motion to defer the project, pending more details with schematics on what will take place on the ground and **Ms. Fleischmann** seconded. The motion was approved unanimously.

6. **Stormwater Quality Cost Share Policy (Potential Changes)**

Kevin Boyer (Stormwater Quality Manager) mentioned that at December's meeting there was a brief discussion on the possible enhancements to the policy. From that meeting, the items that were approved will be presented at the March 6 Raleigh City Council meeting. The discussion will expand

on what we mean by “above and beyond” required treatment of runoff. (handouts located in agenda packet)

Staff Questions for Commission:

- (1) Is the approach a good idea, and should it be allowed?
- (2) Do you agree or disagree with the policy being clear enough that staff can go ahead and do this without changing the policy?

Commission Comments/Discussion:

- o This is what the program is for.
- o The more water quality treatment the better.
- o Figure out a way to incentivize to the commercial sector.
- o Encourage flexibility in design, and it intends to get more water quality treatment.
- o Landscaping cost vs. stormwater improvement cost will foresee some debates on how much is above and beyond.

7. Drainage Assistance Projects (2)

Dale Hyatt (Sr. Engineering Supervisor) presented to the Commission two projects that are up for review. The presentation overview consists of the FY18 approved project funding, pending projects portfolio, projects location map, information on the two projects, and remaining funding for FY18.

2415 Gaheris Court: The existing 72-inch reinforced concrete pipe (RCP) adjacent to this location is experiencing severe erosion at the outlet of the stormwater structure. Previously a segmented retaining wall provided stabilization for the elevation difference between the outlet of the 72-inch RCP and this location. The erosion of the outfall undermined the retaining wall such that the wall has failed. Active erosion from the RCP outfall is now within three feet of the foundation of the structure located at 2415 Gaheris Court. This project will add a junction box and extend the 72-inch RCP away from the structure to address the erosion. A headwall and energy dissipater will also be installed as part of the project.

4012 Toccopola Street: A 36-inch RCP outfall exists in the backyard of 4008 Toccopola Street. Stormwater flows from this outlet to an existing stream channel located in the backyard of 4012 Toccopola Street. This channel is experiencing active erosion that is within 9 feet of the foundation of the residence located at 4012 Toccopola Street. This project will add a junction box and extend the 36-inch RCP away from the structure to eliminate the proximity of the stream bank to the foundation of the residence. A headwall and energy dissipater will also be installed as part of the project.

<i>Estimated Project Costs</i>	
2415 Gaheris Court Drainage Improvements (Project# 1)	\$190,000
4012 Toccopola Street Drainage Improvements (Project# 2)	\$90,000
FY18 Project Funds Approved to date	\$738,000
Total Estimated Project Costs This Period	\$280,000
FY18 Budget	\$1,250,000
FY18 Remaining DA Funds	\$232,000

Commission Comments/Discussion:

- o 2415 Gaheris Court:
 - What is the age of structure at Gaheris Court?
 - Staff: Development was built in 2004.
 - Work being done on HOA property.
 - Is there a piping policy implemented?
 - Staff: No.
 - Concerns on piping stream, originally it should have been preserved as a stream.
 - Blanket exemptions made developers money, now City is picking up the tab to prevent damage to structures.

- Discussions early on since 2004 were not supported on putting limits on the age (building after a certain year) and not able to plat on the floodplain.
- Future discussions on percentage City pays for projects like this.
- 4012 Toccopola Street
 - No comments/discussion.

Blair Hinkle pointed out when the City pursues projects like this, they are getting a permanent drainage easement over the new infrastructure. We must consider potential future maintenance cost of whatever infrastructure is being installed, because at the end of the project it will be ours to maintain. There are pros & cons to pipe system vs. stream system when it comes to maintenance cost. However, we are not out advocating to pipe streams, but in cases like this, there are circumstances where installation of pipe over a longer term provides a benefit from a fiscal perspective to the City stormwater program.

Motion

Ms. Durso made a motion to approve both projects and **Mr. Carper** seconded the motion. The motion was approved unanimously.

8. Participation in the NC MS4 Sustainable Stormwater (MS6) Program

Kevin Boyer provided the Commission with information on the MS4 (*Municipal Separate Storm Sewer System*) and MS6 (*MS4 Sustainable Stormwater*) program, which has to do with our permit with the State under which we operate most of our Stormwater Quality Program. We signed up for this voluntary program whereby our stormwater program will self-monitor our compliance with our stormwater permit with the State as oppose to being inspected, submitting annual reports and being audited. The presentation and discussion consist of: Terms and acronyms, Raleigh Phase 1 MS4 permit, permit requirements, MS6 framework (NC DEMLR), contributors to the MS6 framework, committing to MS6, gap analysis worksheets, and plan for implementing MS6.

Mr. Starr asked how the program is held accountable and how do you hold other municipalities up to the standards the City is operating under. **Kevin Boyer** replied through self-auditing and peer-to-peer auditing submitted to the State. **Blair Hinkle** added also through transparency. When we do the self and peer audits, all that information will be publicly put out there so our records can be seen. As for holding others to our standards, the intent is that we will coordinate with other Phase 1 communities and go to their location and provide feedback with the expectation they will come to Raleigh and do the same.

9. Update on USGS – City of Raleigh Streamflow and Precipitation (item tabled for next month)

Adjournment: **Mr. Webb** made a motion to adjourn and **Mr. Carper** seconded. The motion was approved unanimously. The meeting adjourned at 4:59 pm.

Suzette Mitchell